Regression Analysis and Analysis of Variance

Exercises 6

Exercise 6.1
Use Fisher’s F-test ($\alpha = 0.05$) to test the null hypothesis of equal means for the data set ‘rice.R’.

Exercise 6.2
Use Tukey’s studentized range test ($\alpha = 0.05$) to test the null hypothesis of equal means for the data set ‘rice.R’. Give confidence intervals for all differences $\mu_j - \mu_i$ and state which samples have means which are significantly different.

Exercise 6.3
Use the $t$-test and Bonferroni ($\alpha = 0.05$) to test the null hypothesis of equal means for the data set ‘rice.R’. Give confidence intervals for all differences $\mu_j - \mu_i$ and state which samples have means which are significantly different.

Exercise 6.4
Use the $t$-test and Holm ($\alpha = 0.05$) to test the null hypothesis of equal means for the data set ‘rice.R’. State which samples have means which are significantly different.

Exercise 6.5
Use Scheffé’s method ($\alpha = 0.05$) for multiple testing to test the null hypothesis of equal means for the data set ‘rice.R’. Give confidence intervals for all differences $\mu_j - \mu_i$ and state which samples have means which are significantly different.

Exercise 6.6
Calculate the simultaneous confidence intervals ($\alpha = 0.95$) based on the redescending $\psi$-function for the locations of the data set ‘rice.R’. Use these to give confidence intervals for $\mu_j - \mu_i$ and state which locations are significantly different.